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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,254	10/02/2003	Manuvir Das	3382-65960	4134
26119 7590 03/20/2007 KLARQUIST SPARKMAN LLP 121 S.W. SALMON STREET SUITE 1600 PORTLAND, OR 97204			EXAMINER KISS, ERIC B	
			ART UNIT 2192	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE			MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/679,254	Applicant(s) DAS ET AL.	
	Examiner Eric B. Kiss	Art Unit 2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>20031002, 20040224</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-40 have been examined.

Information Disclosure Statement

2. The Information Disclosure Statement filed February 24, 2004, is duplicative of the Information Disclosure Statement filed October 2, 2003.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 6 and 38-40 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

A claim that requires one or more acts to be performed defines a process. However, not all processes are statutory under 35 U.S.C. § 101. To be statutory, a claimed process must either: (A) result in a physical transformation for which a practical application is either disclosed in the specification or would have been known to a skilled artisan, or (B) be limited to a practical application which produces a useful, tangible, and concrete result. *See Diamond v. Diehr*, 450 U.S. 175, 183-84, 209 USPQ 1, 9 (1981) (quoting *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876)) (“A [statutory] process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing The process requires that certain things should be done with certain substances, and in a certain order; but the tools to be used in doing this may be of secondary consequence.”). *See also In re Alappat*, 33 F.3d 1526, 1543, 31 USPQ2d 1545, 1556-57 (quoting *Diehr*, 450 U.S. at 192, [209 USPQ at 10]).

In *State Street*, the Federal Circuit examined some of its prior section 101 cases, observing that the claimed inventions in those cases were each for a “practical application of an abstract idea” because the elements of the invention operated to produce a “useful, concrete and tangible result.” *State St. Bank & Trust v. Signature Fin. Group*, 149 F.3d 1368, 1373-74, 47 USPQ2d 1596, 1601-02 (Fed Cir. 1998). For example, the court in *State Street* noted that the claimed invention in *Alappat* “constituted a practical application of an abstract idea (a mathematical algorithm, formula, or calculation), because it produced ‘a useful, concrete and tangible result’—the smooth waveform.” *Id.* Similarly, the claimed invention in *Arrhythmia* “constituted a practical application of an abstract idea (a mathematical algorithm, formula, or calculation), because it corresponded to a useful, concrete and tangible thing—the condition of a patient’s heart.” *Id.* (citing *Arrhythmia Research Tech. V. Corazonix Corp.*, 958 F.2d 1053, 22 USPQ2d 1033 (Fed. Cir. 1992)).

In determining whether the claim is for a “practical application,” the focus is not on whether the steps taken to achieve a particular result are useful, tangible and concrete, but rather that the final result is “useful, tangible and concrete.” The Federal Circuit further ruled that it is of little relevance whether a claim is directed to a machine or process for the purpose of a § 101 analysis. *AT&T Corp. v. Excel Commc’ns*, 172 F.3d 1352, 1358, 50 USPQ2d 1447, 1451 (Fed. Cir. 1999).

Claims 38-40 set forth a method (claim 38) and a computer (claims 39-40) defining a series of steps that produce only a series of “optional” results (note that because “a property” follows “immediately thereafter” from one of the optional results, the property may likewise be

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construed as optional). Because the claims do not necessarily produce any result, they are not limited to a useful, concrete, and tangible result necessary to achieve a practical application.

Claim 6 sets forth a computer-readable medium. Applicant's specification defines "computer-readable media" as embracing communication media embodiments, including signals encoded with functional descriptive material. (Specification p. 30, lines 5-16.) The Office's current position is that claims involving signals encoded with functional descriptive material do not fall within any of the categories of patentable subject matter set forth in 35 U.S.C. § 101, and such claims are therefore ineligible for patent protection. *See* 1300 OG 142 (November 22, 2005) (in particular, see Annex IV(c)).

5. To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. §101 (non-statutory) above are further rejected as set forth below in anticipation of Applicant amending these claims to place them within the four statutory categories of invention.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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7. Claims 1-6, 7, 17-20 and 38-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Bertrand Meyer, "Eiffel: Programming for Reusability and Extendibility," February 1987, ACM, SIGPLAN Notices, vol. 22, no. 2, pp. 85-94 (hereinafter "[Mey1987]").

As per claims 1 and 6, [Mey1987] discloses: adding one or more keywords to a function interface for a function in the computer program code, wherein the one or more keywords define the code invocation contract for the function, the contract having one or more contract requirements (see, e.g., section 5, describing assertions being inserted through specialized keywords);

wherein the one or more contract requirements are independent of function call context (see, e.g., the specific examples of assertions in section 5 ("require" defining preconditions and "ensure" defining postconditions)).

[Mey1987] describes implementation as executable software, inherently requiring a computer-readable medium storing instructions (see, e.g., section 9, describing the implementation).

As per claims 2 and 5, [Mey1987] further discloses the one or more contract requirements include a postcondition (one or more conditions to be fulfilled by one or more called functions) (see, e.g., section 5 ("ensure" defining postconditions)).

As per claims 3 and 4, [Mey1987] further discloses the one or more contract requirements include a precondition (one or more conditions to be fulfilled by one or more calling functions) (see, e.g., section 5, ("require" defining preconditions)).

As per claim 7, [Mey1987] discloses:

inserting one or more code annotations only at one or more annotation targets (see, e.g., section 5, describing assertions being inserted through specialized keywords);

wherein each of the one or more annotation targets is of an annotation target category selected from a group consisting of: global variable, formal parameter of a function, return value of a function, user-defined data type (see, e.g., the specific examples of assertions in section 5 (“require” defining preconditions (the annotation target being a function parameter) and “ensure” defining postconditions (the annotation target being a return value))).

As per claim 17, [Mey1987] further discloses the one or more code annotations include a qualifier (see, e.g., section 5).

As per claim 18, [Mey1987] further discloses the qualifier is a precondition qualifier (see, e.g., section 5, (“require” defining preconditions)).

As per claim 19, [Mey1987] further discloses the qualifier is a postcondition qualifier (see, e.g., section 5 (“ensure” defining postconditions)).

As per claim 20, [Mey1987] further discloses the qualifier is an except qualifier (see, e.g., section 5, (“invariant”).

As per claims 38 and 39, [Mey1987] discloses a method and computer system (see, e.g., section 9) comprising: adding an annotation to the computer program code, wherein the annotation comprises an arrangement of lexical components (see, e.g., section 5, describing assertions being inserted through specialized keywords).

As per claim 40, [Mey1987] further discloses the high-level language is an object-oriented programming language (see, e.g., section 3).

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8. Claims 7-37 are rejected under 35 U.S.C. 102(a) as being anticipated by Evans et al., “Splint Manual, Version 3.1.1-1,” June 5, 2003 (prior art of record; hereinafter “[Splint]”).

As per claim 7, [Splint] discloses:

inserting one or more code annotations only at one or more annotation targets (see, e.g., p. 13, describing annotations);

wherein each of the one or more annotation targets is of an annotation target category selected from a group consisting of: global variable, formal parameter of a function, return value of a function, user-defined data type (see, e.g., section 7, beginning on p. 35, describing annotations for function parameters).

As per claim 8, [Splint] further discloses the inserting one or more code annotations only at one or more annotation targets comprises inserting default annotations (see, e.g., section 5.3, describing implicit (default) memory annotations (for example, unannotated function parameters are assumed to be temp)).

As per claim 9, [Splint] further discloses the one or more code annotations include a property (see, e.g., section 9.1, describing the maxSet and maxRead properties).

As per claim 10, [Splint] further discloses the property includes an implicit dereference qualifier (see, e.g., section 9.1, describing the maxRead property).

As per claim 11, [Splint] further discloses the property is read only (see, e.g., section 6.2.1).

As per claim 12, [Splint] further discloses the property is a return value property (see, e.g., p. 49, describing annotations applied to the parameters of the strepy function, where s1 is the output).

As per claim 13, [Splint] further discloses the property indicates a characteristic of a buffer (see, e.g., section 9.1, describing checking access to buffers).

As per claim 14, [Splint] further discloses the characteristic is a readable extent of the buffer (see, e.g., section 9.1, describing the maxRead property).

As per claim 15, [Splint] further discloses the characteristic is a writable extent of the buffer (see, e.g., section 9.1, describing the maxSet property).

As per claim 16, [Splint] further discloses the property indicates a location for a buffer pointer (see, e.g., section 9.1, describing constraints for ptr[i]).

As per claim 17, [Splint] further discloses the one or more code annotations include a qualifier (see, e.g., p. 41, describing requires and ensures clauses).

As per claim 18, [Splint] further discloses the qualifier is a precondition qualifier (see, e.g., p. 41, describing requires clauses).

As per claim 19, [Splint] further discloses the qualifier is a postcondition qualifier (see, e.g., p. 41, describing ensures clauses).

As per claim 20, [Splint] further discloses the qualifier is an except qualifier (see, e.g., p. 42, describing the sef (side effect free) annotation).

As per claim 21, [Splint] further discloses the one or more code annotations include an annotation prefix (see, e.g., section 9.1, describing the maxRead property).

As per claim 22, [Splint] further discloses the annotation prefix comprises a dereference prefix at a reference parameter, and wherein the dereference prefix is used to specify properties of an object referenced by the reference parameter (see, e.g., section 9.1, describing the maxRead property).

As per claim 23, [Splint] further discloses inserting a first code annotation at a reference parameter, and wherein the first code annotation applies to the reference parameter itself (see, e.g., section 9.1, describing constraints for ptr[i]).

As per claim 24, [Splint] discloses inserting an annotation at a value having a value type in the computer program code (see, e.g., p. 13, describing annotations); wherein the annotation is a keyword indicating that the value has usability properties sufficient to allow a function to rely on the value, wherein the usability properties depend on the value type (see, e.g., p. 13, describing annotations; section 7, beginning on p. 35, describing annotations for function parameters; section 4, describing type checking).

As per claim 25, [Splint] further discloses the value is a formal parameter of the function (see, e.g., section 7, beginning on p. 35, describing annotations for function parameters).

As per claim 26, [Splint] further discloses the value is a return value (see, e.g., section 7, beginning on p. 35, describing annotations for function parameters, and in particular, section 7.5 on p. 41, describing ensures clauses).

As per claim 27, [Splint] further discloses the value type is selected from a group comprising: scalar, void, pointer, user-defined type, struct (see, e.g., section 4, describing type checking).

As per claim 28, [Splint] further discloses the value is a reference parameter (see, e.g., section 9, beginning on p. 48, describing buffers accessed by pointers).

As per claim 29, [Splint] further discloses the value is a pointer, wherein an object pointed to by the pointer has one or more readable elements, the one or more readable elements of the object each having usability properties sufficient to allow the function to rely on the one or

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more readable elements (see, e.g., section 9, beginning on p. 48, describing buffers accessed by pointers).

As per claim 30, [Splint] discloses inserting an annotation having an argument in the computer program code, wherein the annotation annotates a value having a first value type, and wherein usability properties of the value are dependent on the first value type (see, e.g., p. 13, describing annotations; section 7, beginning on p. 35, describing annotations for function parameters; section 4, describing type checking);

wherein the annotation indicates that the value has usability properties that depend on the properties of a second value type denoted by the argument of the annotation (see, e.g., p. 57, describing the alt annotation).

As per claim 31, [Splint] further discloses the first value type is a legacy value type (see, e.g., section 4.2, describing pre-ISO99 C Boolean representation).

As per claim 32, [Splint] further discloses the first value type is void * (see, e.g., section 8.4.2).

As per claim 33, [Splint] further discloses the first value type is char * (see, e.g., section 4.1.1).

As per claims 34 and 35, [Splint] discloses adding an annotation to the computer program code (see, e.g., p. 13, describing annotations), wherein the annotation describes a characteristic of a buffer (see, e.g., section 9.1, describing checking access to buffers); and including a size parameter with the annotation, wherein the size parameter describes a portion of the buffer to which the characteristic applies, and wherein the size parameter is operable to describe the portion of the buffer using a size specification selected from a group of plural different size

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specifications comprising: byte count, element count, end pointer location, internal pointer location, sentinel position (see, e.g., section 9.1, describing the maxSet and maxRead properties).

As per claim 36, [Splint] further discloses the annotation indicates the extent to which the buffer is readable (see, e.g., section 9.1, describing the maxRead property).

As per claim 37, [Splint] further discloses the annotation indicates the extent to which the buffer is writable (see, e.g., section 9.1, describing the maxSet property).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

10. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Eric B. Kiss whose telephone number is (571) 272-3699. The Examiner can normally be reached on Tue. - Fri., 7:00 am - 4:30 pm. The Examiner can also be reached on alternate Mondays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Tuan Dam, can be reached on (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature should be directed to the TC 2100 Group receptionist:
571-272-2100.

A handwritten signature in black ink, appearing to read "Eric B. Kiss".

Eric B. Kiss
March 16, 2007